FAMILY LYCEUM.

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FAMILY LYCEUM.

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LYCEUM SEMINARIES.

NUMEROUS *experiments* warrant the assertion, that it is possible to provide accommodations which will enable youth, especially lads over ten years of age, to *support* and *educate themselves*. Some may suppose that this assertion is bold, or perhaps unfounded. But no one will deny, that if it is founded in truth, it involves a principle capable of the most benevolent and sublime results, upon our country and the world. It furnishes a philosopher's stone, which, if it cannot change all material substances into gold, may change all rational beings into moral intelligences, and raise them to the place which their Creator designed for them. It may dispel that thick cloud of ignorance which envelopes our earth, with only here and there a ray of light, either of science or of the gospel, capable of piercing it. It may in some measure remove the gloom of that vast and general scene of intellectual and moral ruins, presented in our fallen and degraded race. It may aid in restoring them to that resemblance of their Creator which they originally possessed.

It has been asserted by many, and by those too who have *facts* as the ground of their opinion, that with the best accommodations for productive industry, a youth may earn a support, by laboring six hours in a day, leaving the same time for mental exercise. But suppose ten hours a day necessary for him to earn a support, two hours would still remain, which might be devoted to rational improvement. And two hours of vigorous and well directed mental effort, every day for ten years, and that in connection with a course of exercises calculated to give him physical strength and skill, as well as a support, could hardly fail of placing a young man at the age of twenty, at an elevation of character, seldom arrived at under the discipline pursued by our existing literary institutions. Intellectual and moral attainments acquired by youth under such a course of discipline, would grow with his growth, and strengthen with his strength, and give him character, dignity, influence. It would not throw over him a garment to-day, which would be liable to fall from him to-morrow. It would not only, at an early age, give character, respectability, and usefulness, but it would give intellectual and moral taste—the disposition, and the power to rise higher, and still higher towards the place his Creator designed for him.

But as charity, and effort, and improvement must begin at home, it may be proper to confine this principle—this power of *self-education and support* to our own country. Suppose it possible to establish an institution, or institutions, provided with such accommodations for productive industry and mental improvement, as will enable any youth, in the strictest sense of the word, to *educate himself*. Where is there a mind which can think, a heart which can feel, or a hand which can move—where is there a parent, a statesman, a patriot, a philanthropist, who would not promptly and cheerfully devote his first and best energies to such a high and holy object. If every citizen of our country, nay, every member of our race, when once supplied with instruments, is invested with power by his Creator to use them to procure for himself a character, higher and firmer than the hills, why should so many thousands be squandered upon a few, to give them a character perhaps not worth possessing, or as evanescent as the vapor of a morning? while the many are left to become degraded by ignorance or vice, fit and liable to be made the tools of aspiring demagogues, or the victims of knaves, or heartless oppressors. To what object can every *poor man*, more wisely devote a portion of his hard-earned pittance, than to carry intelligence, respectability, influence, and usefulness, and with them comfort, competence, and independence, to every poor man's door?

Perhaps the occasion does not demand, certainly time does not permit, a long appeal even to generous and benevolent principles, in behalf of a cause which every thing that regards our country's welfare recommends, in language which cannot be misunderstood, and commands with a voice which cannot be disobeyed. A brief sketch of a plan for applying this power of self-education, of putting into operation an institution which shall afford to the rich and the poor equal advantages for a good education, will therefore be given. The accommodations, then, necessary for the establishment of an institution of the kind proposed, are

1. A tract of land, with a naturally fertile soil, in a good state of cultivation, and fitted for a variety of plants and different kinds of husbandry.
2. Water power sufficient to move a moderate quantity of machinery.
3. Buildings fitted for dwellings, studies, and lecture rooms.
4. Farm-houses and workshops, sufficient for all the agricultural and mechanical operations in which it might be necessary for the pupils to engage.
5. Apparatus, collections in natural history, and books for scientific and literary exercises.
6. A supply of appropriate implements for agricultural and horticultural exercises.
7. Tools for mechanical operations in all the arts capable of being conducted in such an institution.
8. Animals necessary to stock the farm and conduct the agricultural and domestic operations.
9. An able mathematician and thorough teacher in the exact sciences, and in drawing.
10. A naturalist, and practical and agricultural chemist and geologist.
11. A teacher of the English language, elocution, and other English branches.
12. A practical farmer and gardener.
13. A practical and scientific mechanic.

The accommodations above specified might probably be procured for thirty thousand dollars; and when procured, might convert the industry of the pupils into an exhaustless fund for their education and support, as long as there should be children to be educated or supported.

Besides the general object of popular education which makes an urgent claim for institutions where every child may receive a good education, there is at this time a particular object, which calls for immediate measures to carry it into effect. This object is the extension, success and perpetuity of the Lyceum system, which is already commenced in almost every section of the country, and which has the confidence and patronage of some of our purest patriots and ablest statesmen.

Although the prominent object which the Lyceum proposes is a system of self-education, and refuses to acknowledge any human dependence, but the power which every person has to improve himself, still some aid and encouragement, to enable each individual to feel and exert his strength, are desirable, if not necessary. A great desideratum in the present stage of this self-educating system, is to have in every Lyceum members qualified to conduct its exercises in a manner which shall be interesting and profitable to all concerned. A seminary of the kind above specified, would furnish young men with the best opportunities to qualify themselves to become active and useful members of Lyceums, as well as skilful teachers of daily schools.

Another important desideratum for the greatest success of Lyceums, is a full and constant supply of cheap, simple and appropriate apparatus, for illustrating the various subjects of useful science and practical education. The work-shops of the seminary, and the mechanical exercises of its pupils, might furnish all the apparatus, and of the best kind, which might be needed both in Lyceums and public schools. In numerous points of view, which the present occasion will not admit of presenting, a seminary for an economical, practical and liberal education, would exert a reciprocal and powerful influence upon all associations for mutual improvement.

Nor does this object exist in vision merely. Some steps have been taken for its accomplishment. Numerous places have been examined, with a view of finding the necessary accommodations in situation, fertility, and variety of soils, water power, &c. some of which are peculiarly fitted for the design, and liberal offers have been made towards furnishing the funds requisite to procure them.

If Lyceums now existing or to commence soon, could, either directly or indirectly, afford aid in the establishment of a seminary of the kind proposed, they would not only confer a great and lasting benefit upon the cause of education generally, but might in return be rewarded an hundred fold by increasing their own success and usefulness.

COMMON THINGS.

OXIDS.

SOME will be inclined to ask, perhaps, what is the connection between the head and the subject of this article; in other words, whether oxids are common things. They may be answered, that they are some of the most common things in the world.—Late discoveries in science have led to the belief, that every particle of dust is an oxid—that sand, lime, clay, potash, soda, and many other common substances, are oxids. Most ores of the metals are oxids. Nearly all the paints are either oxids, or salts formed from oxids. The rust of iron, the dross of lead, are combinations of those metals with oxigen. Water has sometimes been called the oxid of hydrogen. Perhaps some might be disposed to rank sugar and alcohol under the same class of bodies.

The word oxid, is a general term to express the combination of oxigen with other substances, especially the metals, but in a less quantity than in an acid. The oxid of iron is perhaps a more common coloring matter in the animal, vegetable, and mineral kingdoms, than any other substance. If rocks and soils were entirely free from the oxid of iron, they would probably in most cases be white; quartz almost always contains some iron, and when it does not, it is white or transparent, or both.

Many persons who read this article, will probably recollect of having seen that portion of boards on buildings and fences, which is directly under the nails by which they are fastened, colored black. This may always be observed on chesnut boards, and it always arises from the oxid of iron combining with a substance called gallic acid, contained in large quantities in chesnut wood, oak bark, tea, and numerous other vegetables.

Nearly all the iron ores, which are used to produce the iron of commerce are oxids of iron, and the principal business in reducing the ore to a metalic state, is, to free them from their oxigen, which is done by exposing them to a high heat, when connected with charcoal or some other combustible, which, in the process of combustion, takes the oxigen from the ore, and by that means reduces it to metalic iron.

The oxid or dross of lead, is much less difficult to bring into a metalic state. In lead tube manufactories, and for many other purposes where lead is melted in large quantities, a great portion of it becomes dross, which, if it is mixed with charcoal, and burnt, returns to pure metalic lead.—By burning a red wafer in a candle, and still more by throwing a little red lead upon a burning coal, small globules of lead will be produced from the oxid.

A gentleman who was acquainted with the nature of the dross of lead, procured a large quantity of it, a few years since, for little or nothing, from a lead tube manufacturer, who considered it as useless. By a very easy process, the purchaser restored the dross to pure lead, and sold it as such to the manufacturer from whom he procured it. The one, of course, reaped the benefit of his knowledge of science; the other suffered the evil of his ignorance of it.

Knowing the nature of oxids, and the cause of rust upon iron, brass, copper, lead, &c. and that it is produced by the action of oxigen upon the metals, and generally from oxigen contained in the atmosphere, we should be led of course to cover the surface of articles made from them, with varnish, oil, wax, or some other substance, to exclude them from the air.

The oxids are so numerous, and such constant agents in the domestic and useful arts, that a general notice of this kind can do little more than give a glance at them, and prepare the way for a separate and more particular account of the various kinds, with the mode in which they are formed, their application, modes of using them, means of avoiding the evils arising from them, &c.

GEOLOGY.

FELSPAR.

NEXT to quartz, felspar enters more extensively and more largely into rocks and soils, than any other mineral. Of granite and gneiss, the two oldest rocks, it frequently forms the greater part. Of sienite, it is an essential, and generally the most abundant ingredient. Of greenstone, a very abundant rock in New England, it forms a small part.

In a pulverized state, it constitutes a considerable portion of most soils. With quartz in a greater proportion, and lime in a very small proportion, it forms the most fertile soils.

The varieties of felspar are much fewer than those of quartz, though it varies somewhat in its ingredients, and more in its appearance. Its most common color is a whitish yellow, sometimes red or reddish, and occasionally green.

Some specimens are semi-transparent, or translucent; but its most distinctive character, perhaps, is its fracture, or cleavage. It breaks in one direction better than another, and some kinds cleave in plates one or two feet in diameter. It generally breaks in short cleavages with perpendicular fractures, with something of the appearance of small steps.

It also has a peculiar glistening, more easily recognized, when once seen, than described, which distinguishes it from quartz, which it frequently resembles. It is also a little less hard than quartz, with which it is scratched.

Rocks, especially granite, containing a large proportion of felspar, frequently decompose, producing a clay, sometimes known by the name of porcelain clay, or kaolin, much used in China, also in Europe, and perhaps in this country, in small quantities, in the manufactory of porcelain.

In beds of this porcelain clay, or decomposed granite, there are found, in small and scattered particles and scales, quartz and mica, the last to be described in our next number. To separate the clay from the other ingredients, the whole mass is thrown into a small stream of water, which carries off the clay and deposits it in a kind of pond or reservoir fitted to retain it, where it is cut up in convenient masses for use.

Felspar contains from 12 to 15 per cent. of potash, which renders it partially fusible; and when a portion of quartz is mixed with it, they form such a combination, as to give it, in relation to heat, a middle place between silex and alumine; and the article formed from them bears a slight resemblance to both glass and earthen ware, but is different from both, being neither transparent nor opaque, but translucent, which every one knows is the character of porcelain, or china ware.

The deposit of felspar in Delaware, from which the porcelain factory in Philadelphia is supplied, is both excellent for its working, and beautiful in its appearance. It breaks in large and smooth plates, has about the translucency of a china cup, and a beautiful lustre.

Though less common in any considerable masses than quartz, specimens can still be found within every moderate district in all the Atlantic states, and can easily be furnished for every school in the Union, by the members of schools in New York, Philadelphia, or Boston, and certainly by the children of the three cities. And as it is more blessed to give than to receive, those who shall collect and send this and a few other elementary specimens in Geology, to schools, as a commencement of school cabinets, will be more blessed than those to whom they send them.

EXPERIMENTS.

CHEMISTRY.

IF a bowl, or deep plate, be filled with water, and a cork or piece of light wood, containing the wick of a candle, be floated upon the surface, and a pint glass placed over the wood while the wick is burning, it will be seen whether it will continue to burn; and if it should go out, and the water rise in the glass, it will be seen what portion of the atmosphere, nearly, is consumed, and of course, oxigen.

If a half pint vial be half filled with water, and inverted in a tumbler containing a little water, and the whole placed before the fire, it will be seen whether the water in the vial

will rise or fall, and whether the air in the vial is expanded or contracted by heat.

INTELLECTS.

We yesterday stepped into a neighbor's house, where we observed a little girl three years old very busily and happily employed at the table, with her bricks, (intellectual blocks) dissected maps, minerals, shells, &c. which she called her cabinet, with all the specimens of which she appeared to be perfectly familiar. She had certainly displayed great taste in the arrangement of them.

During the session of the Connecticut Legislature, in New Haven, three or four years since, several of the members were invited to visit the cabinet, belonging to Yale College, which is one of the three or four most complete in the world. After the legislators on *Education* returned to their lodgings, one said to another, 'of what use are all those stones they have got piled up there?' Replied another, 'I am sure I don't know; they have got strange notions about education now-a-days; some think that their gals must larn geography. I don't want any such stuff for my gals. If they can larn to milk well, and make cheese that will fetch a good price, I had rather have it than all their knowledge of geography.'

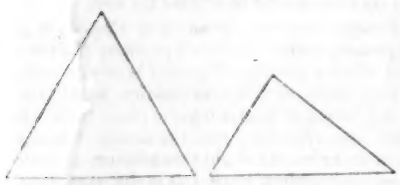
MORALS.

Connected with a Church, less than a thousand miles from Boston, was a female prayer meeting, which embraced some of the most genteel classes, the ladies of some ordinary merchants, also of mechanics, and even some persons engaged in domestic service. After a few meetings several of the ladies, believing that their Creator had designed to have different classes in society, thought it improper for them to mix promiscuously with various classes, as they were called to do at their meetings, and proposed and instituted a *genteel prayer meeting*, that they might preserve the distinction in society which was designed by the Object of their worship.

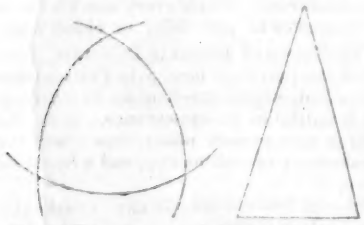
Capt. Paddock, who was wrecked a few years since on the coast of Africa, was taken by the Arabs and held in bondage for several weeks. One of the most striking features in the character of his captors was their punctuality in their prayers. They prayed regularly and punctually fourteen times a day; and the ardor of their petition was, that the Christian dogs might be wrecked upon their coasts, that they might plunder them.

GEOMETRY.

ANGLES.



Equilateral Triangle. Scalene Triangle.



Curved Triangle. Isosceles Triangle.

A more powerful instrument for the advancement of science, or for the practice of the arts, probably does not exist, than the triangle. Without it the surveyor could not easily measure a field, a seaman navigate a ship, or an astronomer find the distance or dimensions of a planet or the sun. And yet the whole of it is comprised in three lines, and three angles, though these lines and angles do not always bear the same proportion to each other. In some triangles the sides are all of equal length, when they are called equilateral triangles. Some have two sides of the same length, with the third either longer or shorter than the other two, when they are called isosceles triangles. Some have all their sides unequal, which are called scaline triangles.

The lines enclosing triangles, may be straight or curved, when they are called plane or curved triangles.

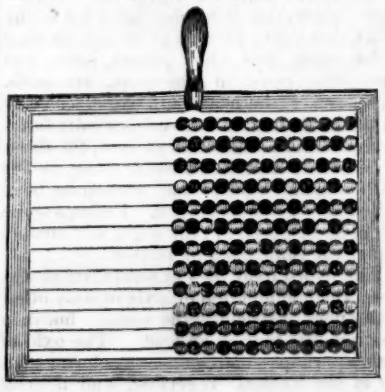
These figures differ, not only in their sides, but in their angles. Every plane triangle must have two acute angles; the other may be obtuse or right; or they may all be acute. In a curved triangle, the angles may all be acute, right or obtuse. By looking at the equator, ecliptic and meridians upon a common globe, the form of a curved triangle can be seen and understood more clearly than by a drawing upon paper.

The right angled triangle is more used than either, or all the others, in its application to the other sciences and the arts. In a former number we spoke of the carpenter's theorem; it is founded on an interesting principle of a right angled triangle.—The principle is, that a square drawn on the longest side of any right angled triangle, contains precisely as much surface, as both the squares drawn on the other two sides. This principle we will illustrate with a drawing in some future number. Numerous other principles and uses of the right angled triangle might be mentioned, but they must be deferred for the present.

The properties and uses of this simple, but efficient instrument of knowledge, are so numerous and important that the explanation and application of them constitute a distinct science, called TRIGONOMETRY, which deserves to be a familiar companion in every school and family. It is our intention to give at some future time, if we can, and avoid being irksome, somewhat in detail, the principles, uses and application of the science of Triangles or Trigonometry.

APPARATUS.

ARITHMOMETER.



No child probably ever learned to count, without the aid of visible objects. His own limbs and organs, such as his hands, fingers, eyes, mouth, ears, &c. probably lead and aid the child to make the first attempts at comparing and combining numbers. He is led very early to compare the number of thumbs and fingers; to observe that he has more than one hand, foot, and eye; that the mouth and nose are not repeated, like the arms and ears. Much farther than that, children seldom go, in combining and comparing numbers, until they are three or four years old.

Though the abstract principles of numbers are, from their nature, more difficult for children or adults, than almost any thing they attempt to learn, unnatural obstacles are frequently thrown in their way by an attempt to aid them. It is always an obstacle in the way of a child's learning to count, to learn the names of numbers faster than he attaches ideas to those names. For example, it is an injury to a child ever to have heard the word *five*, until he has five objects placed before him, and until he has a distinct idea of the previous numbers. The trouble, to children, of these names without ideas, must have been observed by every parent, in noticing that they say one, two, five, eight, &c. using those words which happen to be easiest or most striking to them, without any regard to their order in value. If a child had never heard the word five, eight, ten or any other number, before he had received an impression upon his mind of the numbers, as well as the words three, and four, he of course, would not be troubled with those, to him, unmeaning words.

To aid children in their first attempts at comparing and combining numbers, and to furnish many convenient illustrations in the more advanced parts of Arithmetic, and in Algebra, is the object of the instrument represented in the print above. It is evident at the first glance at the subject, that 144 moveable objects, capable of being put into an infinite variety of forms and combinations, and at the same time so arranged and connected as to be compact and always at hand, must be capable of uses and of applications in illustrating numbers, literally endless.—It is not uncommon for teachers, after having used the arithmometer for years, to discover new illustrations capable of being made by it.

We cannot, therefore, in a brief description of the instrument, mention many of its innumerable applications, either in families or schools. It may be mentioned, however, that a parent, or older brother or sister, or the child himself, may use it, to give him a clear and distinct idea of unity or one; of one repeated, so as to make two, three, &c.; and always to present the numbers 2, 3 or 5 to the *eye* of the child, when the word strikes his *ear*.

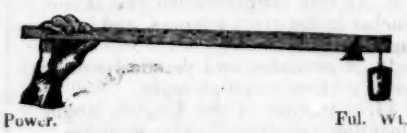
The child can not only see and understand by it, how much one and one, two and one, three and one, two and two, three and two, five and three, eight and five, &c. are, but he can understand how many will be left, if one is taken from one, two from five, three from eight, or five from twelve. He of course can not *learn* merely, but he can *know*, as the young lady did, about the shape and motion of the earth, when she saw them illustrated, for the first time, by an apple in the hand of her uncle, that three and two are five; that five threes are fifteen, &c. [See 'School Globe,' in Lyceum, No. 1.]

Besides addition and subtraction, multiplication and division can be clearly illustrated by this frame of counters, by a continual addition or repetition of two, three, five, &c. It can readily be seen, by placing four threes, or seven fives, how many threes there are in twelve, fives in thirty-five; how much one fourth, two fourths, three fourths; one third, two thirds, &c. of twelve, are; also, one fifth, two fifths, three fifths, &c. of thirty-five.

This subject has more numerous applications, and a more extensive bearing than in its connection with numbers; we believe it has an influence upon nearly all the habits of the mind, as applied to almost every subject in the course of a person's life. But this is too large a subject to attempt to present on the present occasion; if we could believe that its interest on the minds of teachers and parents was equal to its vast importance, or that they would feel interest enough in it to examine it, we would present to their view some other points and bearings in a future number.

The instrument here represented, is designed for schools; a smaller one is prepared to instruct and *amuse* young children at home.

THE LEVER.



Power. Ful. Wt.

EACH of our hands is composed of sixteen levers, (perhaps anatomists would say more,) moved by muscles and tendons. The whole human frame is a system of levers, harmoniously and beautifully combined. The elephant, and all quadrupeds, the whale and all fishes, the bird, insect and reptile, move themselves, and perform the services allotted to them, by the application of the lever, or a combination of levers acting upon each other.

The steam engine causes the boat to plow the deep; the looms, shuttles, spindles, spools, &c. to spread through an extensive manufactory the buz of business by the same simple instrument.

The farmer and mechanic, not only move themselves, but their waggons, plows, hoes, saws, chisels, planes, &c. by the same means.

The lever is sometimes called a power; as are the pulley, wedge, &c.; but it is evident, that the lever, wheel and axle, screw, inclined plane, pulley and wedge, are nothing more than instruments, to which power is applied. The power applied to these instruments is always derived, in ordinary cases, from gravitation, heat or contraction of muscles; for which, see Lyceum, No. 1.

In the use of the lever, as will be seen by a glance at the diagram above, three parts or circumstances are to be brought into view, to understand the nature or application of the instrument, or to acquire the greatest skill in using it. These are the weight, fulcrum and power; or the object to be moved, or the obstacle to be overcome, the point around which it is moved, and the power which does the work.

It will be seen at once, that these three parts may be differently situated in relation to each other; the fulcrum may be between the weight and power, as in the illustration above; or the weight may be between the fulcrum and the power, as would be the case if the two first named should be made to shift places; or the power may be between the fulcrum and the weight, as is the case in most of the limbs of animals; all of which may be clearly illustrated by the simple instrument connected with the Lyceum apparatus represented by the print above; and still more clearly, by the combination of levers belonging to the same apparatus, and the other instruments composing what are called the mechanical powers.

Without attempting a full illustration of the instrument presented in the drawing, and much less all the instruments with which it is connected, it may be remarked, that the simplicity, the constant use, and the endless applications of the lever, with its various combinations, present it as an important and interesting subject for early instruction; and we hope the time is not distant, when every child in all primary schools in the land, will *know as much about himself*, as to be able to tell how many joints he has in a finger, and that at each of these joints, and all others in his system, a lever or levers are plying to give motion to his limbs, and strength and vigor to all his powers.

HUMAN SYMMETRY.

THE symmetry of human character, as it is formed by its Creator, is transcendently beautiful and sublime. The physical, intellectual, social and moral powers of man, are so beautifully blended and wisely fitted to exercise and strengthen each other, that the principal business of the parent and teacher is, to preserve this proportion, and to bring these powers to act upon each other.

Each power is strengthened by its own exercise, and all are strengthened by exercising each other. The child strengthens his muscles, and learns to walk, by walking; he cultivates his voice, and learns to sing, by singing; he strengthens his mind, and learns to judge, by examining, comparing, and drawing conclusions; he cultivates his social faculties, by free and friendly intercourse with other members of his family, or with his school or playmates. Above all, he strengthens the power and love of doing good deeds, by acts of kindness and benevolence—little, if any, by precepts.

The evident design of our Creator is, to have all the other powers exercised, so as to strengthen the moral powers; to be effected and shown, by love to God and our neighbor—by good works—by efforts to benefit our fellow-men—by seeking opportunities to bestow favors—by aiming, in every act, to make some fellow-being or some creature happy.

From Arnott's Physics.

CRYSTALLIZATION.

CRYSTALLIZATION is exemplified in the following particulars:

Water beginning to freeze, shoots delicate needles across the surface; these thicken and interweave until the whole mass has become solid, but the crystalline arrangement always remains. In most substances it is remarkably proved, by the forms of the surfaces left, when the mass is broken.

Moisture freezing on the window-pane in winter, exhibits the most beautiful variety of aborescence.

A flake of snow, viewed in the microscope, is seen to be as symmetrically formed as a fern leaf or a swan's feather.

If a piece of copper be thrown into a solution of silver in nitric acid, it is preferred by the acid to the silver, and is dissolved accordingly: the silver in the mean time, during its precipitation or separation, assumes the form of a beautiful shrub or tree, resting on the remaining copper as its root. This appearance is called the *Arbor Dianæ*.

Any metal which has been melted, when allowed to cool again, slowly and at rest, becomes solid first on the outside of the mass. If, before the cooling be completed, the remaining liquid be poured from within, a curious internal crystalline structure, like grotto work, is seen. What is called the grain of a metal is the result of this crystallization.

Saltpetre, glauber salt, copperas (to use popular names,) or any other of the many neutral salts, being dissolved in water, and the water being then allowed slowly to evaporate, re-appears in beautiful regular crystals, each salt having its peculiar forms.

All the precious stones are crystals, and can be well cut, only parallel to their natural faces.

The basaltic pillars of the Giant's Causeway in Ireland, and of the Isle of Staffa, which appears like a garden supported on magnificent columns in the midst of the ocean, are natural crystalline arrangements of particles, equalling in regularity and beauty any human work, and so far surpassing in grandeur even the Egyptian pyramids, that superstitious conjecture naturally supposed there had been giant architects.

It would be endless to go on enumerating crystalline masses, for all nature's forms, in the inanimate creation, as well as in most organized bodies, are regular and symmetrical; and what we see of broken continents, and islands, and rocks, and wild alpine scenery, are the effects of subsequent convulsions, which have deranged a primitive and natural order.

Much ingenuity has been employed to account for the specific forms which different bodies assume; but the subject is not yet reduced to a state fitting it to be a part of this elementary study. A familiarity with the various figures, which the exact *science of measures* treats of, is required in the person who expects to pursue it with pleasure or advantage. The facts are extremely curious, and the scientific investigation of them may ultimately give important information respecting the intimate constitution of material nature.

Howard's Cottagers.

The philanthropic Howard paid great attention to the poor cottagers on his estate at Cardington, near Bedford; he encouraged their habits of industry, visited them in sickness, and relieved their distresses. The cottages that were falling to ruins, he rebuilt on a more convenient plan; and allotted to each a little flower garden in front, and a piece of ground behind for the cultivation of potatoes; still not raising the low rents at which they had previously been let. His relative, the late Samuel Whitbread, Esq., who had an estate in the same village, seeing how Mr. Howard had contributed to the relief, the welfare, and the comfort of his fellow creatures, rebuilt several cottages soon after, with the same benevolent views; so that Cardington, which was at one time the abode of poverty and wretchedness, was converted into one of the neatest villages in the kingdom; exhibiting all the pleasing appearances of competence and content, the natural rewards of rural industry and virtue.

Mr. Pitt.

Sir Walter Farquhar calling one day on Mr. Pitt, the Premier observed him to be unusually ruffled, and enquired what was the matter? 'Why, to tell you the truth,' replied Sir Walter, 'I am extremely angry with my daughter. She has permitted herself to form an attachment to a young gentleman, by no means qualified in point of rank or fortune, to be my son-in-law.' 'Now, let me say one word in the young lady's behalf,' returned the minister. 'Is the young man you mention, of a respectable family?' 'He is.' 'Is he respectable in himself?' 'He is.' 'Has he the manners and education of a gentleman?' 'He has.' 'Has he an estimable character?' 'He has.' 'Why, then, my dear Sir Walter, hesitate no longer. You and I are well acquainted with the delusions of life. Let your daughter follow her own inclinations, since they appear to be virtuous. You have had more opportunities than I have of knowing the value of affection, and ought to respect it. Let the union take place, and I will not be unmindful that I had the pleasure of recommending it.' The physician consented, the lovers were united, and the patronage of the minister soon gave old Sir Walter no cause to regret the event.

Motion.

Motion is the term applied to the changing of place among bodies.

Were there no motion in the universe, it would be dead. It would be without the rising or setting sun, or river-flow, or moving winds, or sound, or light, or animal existence. To understand the nature and laws of the motions or changes which are going on around him, is to man of the greatest importance, as it enables him to adapt his actions to what is coming in futurity, and often to interfere so as to control and direct futurity, for his special purposes.

Motion is described in any particular case, by referring to certain objects and certain standards of velocity.—A man sitting on the deck of a sailing ship has *common* motion with the ship: if walking on the deck, he has *relative* motion to the ship: but if he be walking towards the stern, just as fast as the ship advances, he is at rest relatively to the bottom or shore. A ship sailing against the tide, just as fast as the tide runs, has rest relatively both to the earth and water. *Absolute* motion is that which is relative to the whole universe, or to the space in which the universe exists. We have no means of ascertaining such: for although we know how fast our globe whirls upon its axis and round the sun, we have no measure of the motion of the sun himself—revolving probably round some more distant centre, and carrying all the planets along with him.

Motion is called *rapid*, as that of lightning—*slow*, as that of the sun-dial shadow: both terms having reference to ordinary intermediate velocities. It is called *straight*, or *rectilineal*, in the observed path of a falling body—*bent*, or *curvilinear*, in the track of a bullet shot obliquely—*accelerated*, in a stone falling to the earth—*retarded*, in the stone thrown upwards while rising to the point where it stops before again descending.—*Arnott.*

Dog's Grotto.

The Grotto del Cane or Dog's grotto, which is mentioned by every traveller, is in the same situation as in the days of Pliny. It is on the borders of the lake Aquano, an ancient crater; it has a stratum of carbonic acid gas on the floor which flows over the lip of the cavern like water, and suffocates a dog whose nose is immersed in this deadly atmosphere, while a man walks in security. Phosphorus would burn at two feet from the floor, but the heat of the steel spark was not sufficient to explode gunpowder in a pistol pan.

Bone and Ivory.

The bones of animals are composed of a white, hard, lamellar substance, consisting chiefly of phosphate of lime, with a small portion of other earths, and impregnated with oily and gelatinous matter. Exposure to heat causes them to soften and crumble. Bone is used in the arts for the handles of cutlery, and various articles of turner's work. It is whitened by exposure to the sun and weather, and sometimes by the use of chlorine gas. It is wrought by sawing, turning, &c., and is polished with pumice and tripoli. *Ivory* is the material of the elephant's tusks. It agrees with bone in its principal properties, but is more compact, hard, and white, and receives a finer polish. When burnt in close vessels and afterwards reduced to powder, it furnishes the pigment called *ivory black*. The *shells* of marine animals, differ from bone in being composed of carbonate, instead of phosphate of lime.—*Bigelow.*

Horn.

Horn differs from bone, not only in its texture, which is softer, but also in its composition, being composed chiefly of animal matter resembling coagulated albumen, and containing but little lime. Horn when heated becomes soft, flexible, and plastic, capable of being cemented and pressed by moulds into a great variety of shapes.—*Ib.*

Tortoise Shell.

This substance exists in the form of plates on the outside of the shell of a species of sea turtle (*Testudo Imbricata*). It resembles horn in its general properties, and like that article may be wrought by softening it in boiling water, and subjecting it, while hot, to pressure in moulds. The edges of different pieces, by pressing them with heated irons, may be joined together and made to cohere firmly.—*Ib.*

Whalebone.

This substance is obtained from the mouth of several species of whale, where it exists in the form of plates arrranged on the outer edge of the upper jaw. These plates terminate in a kind of hair. Whalebone, in its texture and chemical properties, is very similar to horn. It is strong, light, and elastic, on which accounts it is applied to various mechanical uses. Whalebone, when heated by steam, or boiling water, becomes more flexible, and if bent into any shape, retains its form on cooling. Hence it has been manufactured into various woven fabrics. It may be cemented in the same way as horn or turtle shell.—*Ib.*

Wax.

Wax, in its crude state, is obtained by melting the honeycomb of the bee. It is commonly classed with vegetable substances, but the experiments of Huber have shown, that it is produced by the bees themselves, and not gathered by them directly from plants, as was formerly supposed. Wax melts with a gentle heat, at one hundred and forty-two degrees of Fahrenheit, is inflammable, dissolves in boiling alcohol, ether, and fixed oils; but is insoluble in water. Beeswax is deprived of its coloring matter by bleaching. To effect this, the melted wax is suffered to run through holes in the bottom of a vessel, upon the surface of a cylinder which is kept revolving in water, by which means the wax is spread out, and cooled in the form of thin laminæ or ribbands. It is then exposed to the light and air upon frames, and occasionally wet, till the bleaching is completed. Bayberry or myrtle wax is a harder substance than beeswax, obtained from the berries of the *myrica cerifera* by boiling them in water.—*Ib.*

Lives of the Indians.... No. II.

WRITTEN FOR THE YOUTH OF AMERICA.

Massasoit.

Once Pawkunnawkut's warriors stood
Thick as the columns of the wood;
On shore and isle, unconquered men
Call *Massasoit*, Father, then. *Eastburn.*

One of the most powerful tribes of Indians in New England, at the time of its settlement, was that of the Wampanoags, of which Massasoit was sachem. His residence was at Pawkunnawkut, near Bristol, in Rhode Island. In March, 1621, he came to visit the settlers at Plymouth, accompanied by sixty of his warriors. The white people invited him into a house, and placed a green rug and some cushions for him. Presently Governor Carver came in and kissed his hand, and the sachem kissed him. Some rum was then brought in, and Massasoit 'drank a great draught which made him sweat.' A treaty was then made, in which the whites and indians agreed to be friendly to each other.

Massasoit was a large and strong man, and wore a chain of white beads about his neck, made of bone. His face was painted red, and he had a large knife hanging by a string in his bosom. His warriors were tall men, with their faces painted red, yellow, or black, and their hair oiled.

In about three months, several of the white people went to visit Massasoit. They carried a red coat with some lace on it, as a present, with which the sachem was highly pleased. They also gave him a copper chain, which, they told him, he must keep, and send it as a signal when any of his indians visited the whites, that it might be known they came from him. They saluted Massasoit by firing their guns, which pleased him greatly. He then put on the coat and hung the chain around his neck, and appeared very proud of his gifts. He named about thirty places, of which he was the sachem, and said that his people should take their beaver skins to the white men. He then lighted his pipe, and asked them many questions about the country from which they came, and showed great friendship and regard for them.

Two years afterwards, Massasoit sent word to his friends at Plymouth, that he was very sick, and requested some of them to come and see him before he died. Mr. Winslow went, with an indian named Hobomoc as an interpreter. He found the house full of indians, and six or eight women standing round his bed, and rubbing him to keep him warm. He said, 'O, Winslow, I shall never see you again!' But Mr. Winslow gave him some medicine, and he soon became well. Mr. Winslow sent to Plymouth for two chickens for Massasoit to eat, but he would not suffer them to be killed.

Some years after, Mr. Winslow, on his return from a distance, stopped to see his old friend, Massasoit. The sachem received him with joy, and presently sent a messenger to Plymouth to inform the whites that Mr. Winslow was dead. They believed it, and mourned greatly. In a few days Massasoit went home with Mr. Winslow, and being asked why he sent a report of his death? replied, 'That you might be more glad to find him return alive!'

In 1632, Massasoit had a battle with the Narraganset Indians, when he changed his name to Ousamequin. He died about the year 1661.—For forty years he continued the firm friend of the white men, furnishing them with articles of trade, and giving them assistance against their enemies. He had two sons, Mooanam and Metacomet. The former was called, by the white people, Alexander, and died immediately after his father, in 1662. He was succeeded by Metacomet, or Philip, the most terrible enemy of the English, of whom I shall give an account in the next number.

New England Convention.

A Convention of Farmers, Mechanics, and other industrious classes, met at the State-House, on Thursday last, to consult upon the best measures to promote their interests in their various pursuits in business, and in the education of their children. We were particularly gratified to find that the last object, viz. *Education*, occupied a prominent place in the proceedings of the meeting which organized the Society. And, though no politicians, we will not only bid every society and every measure, God speed, which has Education, the security of every right, for its object; but we shall esteem it a great pleasure to give, in any and every way in our power, a very humble cooperation.

Boston Mechanics' Lyceum.

A Society under the above title, which was organized about two years since, has probably been more useful to its members, than any other literary society in the city. The members have all been teachers, and of course learners, most thoroughly and effectually.

Not only mechanics, but the wives, daughters, and female friends of mechanics, have made contributions of intellectual and social entertainment and instruction.

A journal, entitled The Young Mechanic, is now published under its patronage, and edited entirely by its members.

The first meeting of the next term will be held on Tuesday evening, September 25. when an Introductory Lecture will be delivered by George W. Light.

School Lyceums.

The pupils of many of the schools in New York have formed themselves into Lyceums, or voluntary associations for mutual improvement, and collected specimens of Natural History and of their own workmanship, which form cabinets in their school rooms. A short time since, some of these specimens were sent to the schools in Boston as a present.

Upon the reception of the present from New York, the pupils from several of the schools in Boston, organized a society by the name of the Boston School Lyceum. This society have put up several hundred sets of geological specimens, which they have sent to Conventions of Teachers, and to schools in different parts of the country. Many of these schools, to whom the presents were sent from the Boston School Lyceum, have reciprocated the favor, and have sent specimens to Boston, and to other places.

How easy it would be to have Lyceums connected with all the schools in the Union, and to institute a system of exchanges among them, and by that means to have a cabinet of Natural History in every school, and thus procure the materials for Cabinets in Town, County, and State Lyceums. Who can tell what four millions of children can do until they *try*? Would it not be wise for their parents to permit them to *try* to help themselves and *each other*?

Libraries.

The three largest Libraries in the United States, are those at Cambridge College, the Boston Athenæum, and in the city of Philadelphia.

Cabinets of Natural History.

The collection of specimens in Natural History, in Yale College, is the most valuable, and that owned by the Marine Society, in Salem, one of the most beautiful, in the United States.

One Cent and 50,000 Libraries.

If, on every Monday morning, each child in the fifty thousand schools in the U. States, should pay One Cent for a School Library, ample provision would be made for respectable and increasing Libraries, in all those schools.

The Arts.

Porcelain, of an excellent quality, is made in Philadelphia, from adularia, a species of felspar. Chrome Yellow, and Epsom Salts, of an excellent quality, are made in Baltimore; both from minerals in that vicinity.

Copperas, (sulphate of iron,) is made from the sulphuret of iron, in Strafford, Vt. where it is found in great quantities.

Two Millions of Young Surveyors.

In the United States, are more than four millions of children, between the ages of three and sixteen years. One half of them might be employed to render their gratuitous but efficient services, in collecting Cabinets of Natural History, and in commencing minute and thorough surveys of the natural resources of our country.

Rail Ways.

The Rail Road Company who have made some progress in connecting the waters of New York with those of Philadelphia, have given to the Legislature of New Jersey, one hundred thousand dollars for their grant, besides a transit duty, which must amount to not less than thirty thousand dollars annually.

Our Alphabet.

Dr. Weeks, of Utica, in an essay communicated to the American Lyceum, at their last meeting, showed that the word phantom might be pronounced wrong in 3,839 different ways; and that it might be written wrong in 3,023 different ways; and that this word is a fair specimen to show the labor and difficulty of pronouncing and spelling our language, with the present alphabet.

Tribute to Ignorance.

A farmer in Pepperell, Mass. has spent more or less time and money, nearly every year, for thirty years, in digging into a solid rock of mica slate, in pursuit of gold, and has now made an excavation of more than sixty feet, which he has done in a great measure by the power of heat and moisture, or by applying alternately fire and water.

If he had known, that the beautiful crystals which dazzled his eyes were nothing more nor less than sulphur and iron, or reflected that 'all was not gold that glistened,' he might have saved his time, his money, and his sense.

Imaginary Fortunes.

The sulphuret of iron, composed of sulphur and iron, frequently crystallizes in regular cubes, with a color and lustre nearly resembling gold. From this mineral many thousand fortunes have been made, with one exception, of great value, viz.—they exist only in the *imagination*.

School for the Blind.

Dr. Howe has opened the School in behalf of which he visited Europe, with the aid of a teacher who returned with him; and though blind, he is said to be thoroughly acquainted with history, natural philosophy, mathematics, and other branches of science, which it would seem impracticable for any one to study without the sense of seeing.

Miss Lord's School.

We were surprized, a few days since, in stepping into Miss Lord's school, to find that it was not full; as she proved, in her charge of one of the primary schools for several years, that she possesses distinguished skill in the management of young children. We know of no person more skilful in making *good readers*; but her great excellence is in the management and cultivation of the temper and heart. There is no person of our acquaintance, to whom we should think it a greater favor to be able to entrust young children.—Her room is a delightful one in the Masonic Temple.

Mr. Emerson's School,

In Chester, N. H., is a delightful retreat for children, where, in the house and under the charge of Mr. Emerson, they have every advantage for physical, intellectual and moral improvement.

Political Economy.

It is fully proved by *experiment*, that the most productive property a nation or any community can possess, is that invested in School Houses and Churches.

Lyceum Buildings.

It is no credit to the intelligence, moral habits, or economy of our towns and villages, that, in nine cases out of ten, the only place of resort for the social entertainment and instruction provided for young people, is a tavern. The first apartment they enter, is a bar-room; the first and most imposing objects presented to their view, is an array of decanters and glasses; the first specimens offered for their examination and experiment, are brandy, gin, wine, &c.

We invite our readers, and especially parents, to compare such a place of resort, and such associations, with those presented by a Village Lyceum, commodiously arranged, and well furnished with specimens of nature and the arts, with apparatus for experimenting upon them; with books, diagrams, and prints, describing and illustrating them; and the whole under an arrangement for weekly or occasional meetings for mutual and social recreation and improvement.

If in comparing the two places of resort, they should confine their views to the subject of the economy, in the most diminutive sense of the word—*the mere saving of money*, arguments in favor of deserting the one, and providing the other, would be altogether overwhelming.

What is the cost of a tavern to many a New England village? Let us make a slight estimate.

To twenty persons 2 glasses of spirits a day each, at 6 cents a glass,	$912 40
To twenty, for 3 glasses a week,	195 00
To fifty, for 20 glasses a year,	62 00
Horse and chaise to fifty persons, three days each, at $2 a day,	300 00
Fifty pupils at a dancing school, two quarters, whole expense not less than $10 each per quarter,	1000 00
Two balls, of thirty couple, not less than $10 each for each couple,	600 00
Loss of time, 500 days, at $1 a day,	500 00
Interest on capital, in buildings, and other accommodations, $5000,	300 00
	$3,869 40
For Tickets to a Lyceum for 300 persons, at $2 each, to be expended in books, apparatus, instruction, &c.	$600 00
For interest on $2000, for building,	120 00
	$720 00
For a Tavern,	$3,869 40
Saving in the current expenses of the town, by the Lyceum,	$2,849 40

Some may say, that the above estimate is partial towards the Lyceum; but if the whole subject is examined in all its bearings upon the *pecuniary* prosperity of a village, the odds will be found far more imposing than in the above estimate. It would be proper to make an estimate, in a pecuniary point of view, of the loss of life and of industrious habits, on the one side, and of the improvements in agriculture and the arts, on the other, and many other items which might be named, to say nothing about thousands of nameless ones, to give a full and correct view of the subject in its bearing upon pecuniary prosperity merely.

According to the above estimate, funds invested in a Village Lyceum, well endowed, would pay an interest in gold and silver of about two hundred per cent.

But if intellectual power and moral dignity are of any value, a place of resort for young people which should be intellectual and moral at the same time that it was social, cannot be estimated by dollars and cents.—It is even derogatory to the grandeur of the subject to attempt it. Perhaps it is not too much to say, that the salvation of our country and the restoration of our race depends upon these or some other institutions, calculated to carry home to every man's door the power and the dignity of knowledge; to give to every plain farmer's son, and every poor mechanic's daughter, an education, as good as can be purchased with the money of the rich.

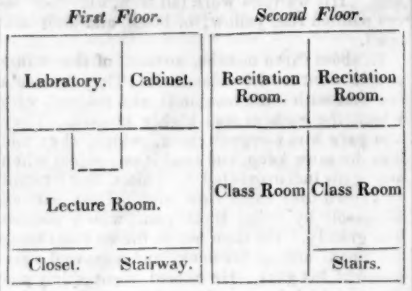
The accomplishment of the object is as easy as its results will be important and interesting. It only requires fifty persons in a town who will take one share each, of twenty-five dollars, to give them a right in such a building, with its appendages.

The necessary accommodations in a Village Lyceum, are, perhaps, a convenient lecture room, a laboratory, several class rooms, and a cabinet consisting of apparatus, collections in Natural History, a library, &c.

Besides the accommodations it would afford to the Lyceum for uniting in a system of circuit teaching, or other meetings for mutual and social improvement, it might be used for a Town House, and possibly for a daily school.

The plan of a Village Lyceum, which follows, may afford some aid or hints to those who may wish to procure one.

VILLAGE LYCEUM.



From Professor Silliman's Journal of Science.

Ætna.

'This mighty and imposing mountain, which rises in solitary grandeur to the height of above ten thousand feet, and embraces a circumference of one hundred and eighty miles, is entirely composed of lavas, which, whatever subordinate differences may exist between them, all possess the appearance of having been ejected above the surface of water, and not under pressure.

'In the structure of this mountain, every thing wears alike the character of vastness. The products of the eruptions of Vesuvius may be said almost to sink into insignificance, when compared with these *coulees*, some of which are four or five miles in breadth, fifteen in length, and from fifty to one hundred feet in thickness; and the changes made on the coast by them are so considerable, that the natural boundaries between the sea and land seem almost to depend upon the movements of the volcano.

'The height too of Ætna is so great, that the lava frequently finds less resistance in piercing the flanks of the mountain, than in rising to its summit, and has in this manner formed a number of minor cones, many of which possess their respective craters, and have given rise to considerable streams of lava.

'Hence an ancient poet has very happily termed this volcano the parent of Sicilian mountains, an expression strictly applicable to the relation which it bears to the hills in its immediate neighborhood, all of which have been formed by successive ejections of matter from its interior.

The grandest and most original feature indeed in the physiognomy of Ætna, is the zone of subordinate volcanic hills with which it is encompassed, and which look like a court of subaltern princes waiting upon their sovereign.

'Of these, some are covered with vegetation, others are bare and arid, their relative antiquity being probably denoted by the progress vegetation has made upon their surface, and the extraordinary difference that exists in this respect seems to indicate, that the mountain, to which they owe their origin, must have been in a state of activity, if not at a period antecedent to the commencement of the present order of things, at least at a distance of time exceedingly remote.

'The silence of Homer on the subject of the eruptions of Ætna is indeed often quoted in proof of the more modern date of this volcano; but to such *negative* evidence we have to oppose the *positive* statement of Diodorus Siculus, who notices an eruption long anterior to the age of this poet, as he says that the Sicani, who with the exception of the fabulous Cyclops and Lestrigons, were the first inhabitants of the island, and who are admitted on all sides to have possessed it considerably before the Trojan war, deserted the neighborhood of Mount Ætna in consequence of the terror caused by the eruptions of the volcano.

'This is confirmed by Dionysius Halicarnassus, who states that the Siculi, who passed over from Magna Græcia about eighty years before the Trojan war, first took possession of that part of the island which had been deserted by the Sicanians, so that it is probable that the mountain was at that period tolerably tranquil; and supposing no eruption to have taken place from that time till the age of Homer, it is by no means unlikely, that in a barbarous age, the tradition of events so remote may have been in great measure effaced, and thus have never reached the ears of the Greek poet.

'The earliest historian by whom the volcano has been noticed is Thucydides, who says, that up to the date of the Peloponnesian war, which commenced in the year 431 B. C. three eruptions had taken place from Mount Ætna, since Sicily was peopled by the Greeks. It is probably to one of these that Pindar has alluded in his first Pythian Ode, written according to Heyne in consequence of the victory obtained by Hiero in the year 470 B. C. It may be remarked that this poet particularly speaks of the streams of lava, which, if we may judge from Vesuvius, are less usual concomitants of the first eruptions of a volcano.

'Diodorus Siculus mentions an eruption subsequent to the above, namely in the 96th Olympiad, or 96 years B. C. which stopped the Carthagenian army in their march against Syracuse. The stream may be seen on the eastern slope of the mountain near Giarre, extending over a breadth of more than two miles, and having a length of twenty-four from the summit of the mountain to its final termination in the sea. The spot in question is called the Bosco di Aci; it contains many large trees, and has a partial coating of vegetable mould, and it is seen that this torrent covered lavas of an older date which existed on the spot.

'Four eruptions are recorded to have happened between this period and the century immediately preceding the Christian era, during which latter epoch the mountain seems to have been in a state of frequent agitation, so that it is noticed by the poets among the signs of the anger of the gods at the death of Cæsar.

'After this for about a thousand years, its eruptions are but little noticed, but during the last eight centuries they have succeeded each other with considerable rapidity. Referring however to the chronological list of the eruptions of the mountain for a specification of these, I shall here merely allude to such as have produced some remarkable change in the character of the country.'

'In the memorable eruption of 1669, a rent twelve inches in length took place on the flank of the mountain above Nicolise, about half way between Catania and the summit; and from this fissure descended a torrent of melted matter, which continued flowing for several miles, destroyed a part of Catania, and at length entering the sea, formed a little promontory, which serves to arrest the fury of the waves in that quarter; at the same time the accumulation of matter ejected, raised on the mountain two conical hills called the Monti Mossi, which measure at their base about two Italian miles, and are in height more than three hundred feet above the slope of the mountain on which they are placed.' Ferrara.

Professor Daubeny has given a table shewing the correspondence in point of time between the eruptions of Ætna, Vesuvius and the other volcanos connected with them.

The earliest eruption of Ætna that is recorded, was about 480 years before Christ, and there were nine others before that epoch, besides one of the Eolian Isles and one of Ischia. Vesuvius had no eruption during this period nor is any previous one known, although it is certain that there must have been eruptions more ancient than any that are recorded of Ætna, and the same remark may be made of Ætna itself.

From the birth of Christ to 1824, there were only six eruptions of Ætna; in the mean time there were nine of Vesuvius.

In 1198, the Solfaterra was inflamed, and in 1302 there was an eruption of Mount Epemeo in Ischia. From 1329 to 1719 there were forty-two eruptions of Ætna, not quite one to a century Vesuvius gave in the same time, or rather from 1306 to 1622, forty-two eruptions; the ratio of time a little more.

'It appears from this table that the nearest coincidence between the eruption of the two volcanos was in 1694 and in 1811, when they occurred within a month of each other; and that on eight several occasions an interval of less than half a year elapsed between them, viz. that of Vesuvius December 2, 1754, was followed by one of Ætna on March 2, 1755; Vesuvius August 3, 1779, by Ætna May 18, 1780; Vesuvius October 31, by Ætna July 28, 1787; Ætna June, 1788, by Vesuvius February, 1799; again followed by one of Ætna in June, same year; Ætna March 27, 1809, by Vesuvius December 10, 1809; Vesuvius October 12, 1811, by Ætna October 25, 1811; again followed by Vesuvius December 31, same year; Vesuvius May 27, 1819, by Ætna November 25, same year.'

Fans.

The fan of antiquity was of a very different shape from that in use in our time; it was more like a hand screen with a round handle, was frequently composed of feathers, and then was used by the Roman ladies; the Italian fans were, however, very like ours, and it is probable that the shape of the modern fan has been copied from the Italians. It appears that men were sometimes so effeminate as to use a fan. Greene reproaches the men of his day for wearing plumes of feathers in their hands, which in wars, their ancestors wore on their heads. Looking glasses were sometimes set in these fans, in the broad part above the handle.

It was formerly the fashion of a servant to attend on purpose to carry the lady's fan when she walked out, and this was one of the offices of her gentleman usher.

'In Spain,' says a recent traveller, 'the fan is an universal appendage to a lady's dress; she is scarcely ever seen without it, when in a promenade or in the drawing room. In that warm climate it is rather indispensable for its utility, and it serves also as a graceful assistant to their expressive action in conversation.

'Lady W——, (Wellesley we presume) assimilates herself with Spanish fashion; she has adopted the dress of the ladies; in the playful use of the fan, she confesses her deficiency; she has translated Addison's descriptions of his application of it, by the ladies of different ages and inclinations, which the Spanish ladies exemplify, and allow to be correct. You would hardly have supposed that the Spectator was in Cadiz; but as I have it at hand, I will quote the passage which gives you the words of command, and I will refer you to the second paper of the work, for the full explanation of them.

Handle your fans.
Unfurl your fans.
Discharge your fans.
Ground your fans.
Recover your fans.
Flutter your fans.

'All these parts of the exercise a lady told me were correct; and she went through her part in the various uses of it, from youth to age, as perfectly as if Addison had been the drill serjeant.'

Gloves.

Charlemagne, about the year 790, granted an unlimited right of hunting, to the abbots and monks of Sith.n, for making gloves and girdles of the skins of the deer they killed, and covers for their books. Stowe relates, 'that Edward Vere, Earl of Oxford, having travelled into Italy, is recorded to have been the first that brough[t] England embroidered gloves, and perfume[d] presenting the queen (Elizabeth) with a [pair] the former, she was so pleased with them [that she] to be drawn with them in one of her portr[aits].'

George Clifford, Earl of Cumberland, received a glove from Queen Elizabeth. The queen had dropped it; when the earl taking it up to return to her, she presented it to him as a mark of esteem. He adorned it with jewels, and wore it in the front of his hat at the tournaments.

QUESTIONS

ON THE THIRD NUMBER OF THE LYCEUM.

How many of the twenty-three distinguished characters, mentioned on the first page of the last number, were sons of mechanics? Which of them were born slaves?

What was the employment of the father of Linnæus?

Who was Ferguson's father? also Simpson's, the mathematician?

What part of our globe contains a mixture of the greatest variety of substances?

What portion of the ocean, by weight, is common salt?

What other useful salts are dissolved in the ocean?

What are some of the most noted salt mines upon the earth?

Which have been longest wrought, those in Poland or those in England?

In what part of Europe are hills or mountains of salt?

In what state is salt found in Africa?

Is rock salt generally used in its natural state, or is it first dissolved and then evaporated?

From what sources are the salt works supplied, in the interior of our own country, from mines or springs?

To what depth has the earth been perforated to procure salt water?

When salt springs are found at a great distance beneath the earth, is the water raised by pumps or by some internal pressure?

By what process is common salt crystallized, by evaporation or by cooling?

How are glauber and epsom salts crystallized, by evaporation or by cooling?

What are the chemical names of glauber and epsom salts?

What is the definition of the term salt, as used in science?

Which has the greatest simplicity and perfection, the alphabet of books, or that of nature?

Do the letters in the alphabet of nature continue the same, in different ages and nations, or do they change like the alphabet of books?

Who were most in the habit of studying the alphabet and the book of nature, ancient or modern christians?

What three letters compose the volume of nature, as unfolded in the vegetable creation?

What other letter is necessary to learn the animal kingdom?

What three letters compose the atmosphere and ocean?

What are formed by the meeting of lines and surfaces?

When two lines or surfaces cross each other, how many angles do they form?

Is an obtuse angle larger or smaller than a right angle?

What is the angle called, made by the meeting of the floor, or wall, and two adjacent sides of a room, a solid or linear angle?

How many surfaces form the angle at the apex of a four-sided pyramid?

How many surfaces *may* unite to form an angle?

How many lines are ever used in forming an angle?

What tools do carpenters and cabinet-makers use, to measure angles?

What are some of the other arts brought into use, in the manufactory of a pin?

What principle of heat do blacksmiths illustrate, when they put tier upon carriage wheels?

Which are the most dignified and efficient principles and instruments in the government of schools, compulsion and the ferule, or a sense of right and wrong?

Which are the cheapest instruments in schools, apparatus for *visible illustrations*, or books; and which leads the mind to depend and move more upon its own strength?

Is apparatus calculated to make schools more or less pleasant to children, and to continue or discontinue their improvement, after their school education is finished?

How many steam-boats run upon the Mississippi and its branches, and what is the length of navigable streams in those western waters?

In what year were pins first used in England, and from where brought?

When two curved surfaces or lines meet to form an angle, what is it called?

What is an angle called, which is made by one plane surface and curved surface?*

What angle is made at the base of a cone?

Suppose that a part of the curved surface of a cone be cut so as to make it a plane surface, what angles would be formed where the plane and curved surfaces meet?

How many sides to a parallelopiped, also angles, both solid and superficial?

How many angles of each kind in the regular solid, called an icosaedron, or twenty-sided solid; also in the other regular solids? For which, see school apparatus.

* By a typographical error in the last number, the term plane curved angle was used instead of plano curved—*page* 10, *col.* 3, *parag.* 2, *line* 5.